SIKLUS: Journal Research Midwifery Politeknik Tegal
Volume 09, Issue 02, June 2020
p-ISSN: 2089-6778
e-ISSN: 2549-5054

IRON TABLET REMINDER AGAINST HAEMOGLOBIN INCREASE ON PREGNANT WOMEN IN WARUREJA COMMUNITY HEALTH CENTER

Susi Setyaningsih[1)], Ulfatul Latifah[2)], Adevia Maulidya Chikmah[3)]
Email:susisetyaningsih95@gmail.com[1)], ulfatul.bidan@poltektegal.ac.id[2)], depheeya@gmail.com[3)]
[1,2,3] Midwifery Diploma Program of Polytechnic Harapan Bersama, 9th Mataram Street Tegal City

ARTICLE INFORMATION

Received:
April 09, 2020

Revised:
June 28, 2020

Accepted:
June 28, 2020

Available Online:
June 30, 2020

Abstract

There were 326.3 million cellphone users in Indonesia and an increase of about 2% in 2016. One application most used by people was short text messenger (SMS), it also can be used as a reminder from health facility to their patients such as drinking iron tablet. Anemia, in Indonesia, still a significant cause of maternal mortality. This study aims to determine SMS's effect as a reminder of consuming iron tablets to increase hemoglobin on pregnancy. This study was a quantitative study with a Quasi Experiment using pre and post-test group design with a control group without randomization. Sample in this study taken using total sampling and obtained 31 respondents. Collected data analyzed using t-test analysis. The findingof this studystatistically shows ap-value 0,0001, which means thatiron tablets increasehemoglobin levels in pregnant women with anemia. It is expected that health workers could utilize technology to help to educate and monitoring pregnant women's behavior in consuming the iron tablet.

Keyword: *SMS reminder, iron tablets, Hemoglobin*

Correspondence:
Ulfatul Latifah, Midwifery Diploma Program of Polytechnic Harapan Bersama, 9th Mataram Street Tegal City. Phone number: 52142 Phone/Fax : (0283) 352000 e-mail: ulfatul.bidan@poltektegal.ac.id.

1. Introduction

The maternal mortality rate (MMR) is one indicator that can describe the welfare of a country. According toWorld Health Organization (WHO) data,the maternal mortalityrate in the world in 2015 was 216per 100,000 live birthsor the estimatednumber of maternal deaths was303,000 deathswith the highestnumberin developing countries.[1)] Whereas MMR in Indonesia in 2015 was 305 per 100,000 live births.[2)] The causes of death in pregnancy are hemorrhage, hypertension, infections, and indirect causes, mostly due to pre-existingmedical conditions andduring pregnancy. Indirectcauses of maternal mortality, also known as "four too", they are too old or too young to become pregnant, too many children and too close (pregnancy spacing). Others indirectly cause known as "three delays" they are late to recognize danger signs of childbirth, late referred to service facilities health and late handling by health workers in health care facilities.[3)] One of the hemorrhages causes in pregnancy is anemia.

The prevalence of anemia in Indonesia was37.1%. This number is still high, and also it means there was one in three pregnant women suffers from anemia.[4)]

Anemia is a public health problembecause itis associated with an increased risk of morbidity and mortalityduring birth.[5)] Pregnant

DOI: 10.30591/siklus.v9i2.1911.g1165

p-ISSN: 2089-6778
e-ISSN: 2549-5054

women with anemia were at risk of experiencing Hemorrhage during childbirth, which can result in death.

Anemia occurred in pregnancy caused by an increased need for nutrients and changes in the blood. Anemia affects the mother and fetus; this condition will increase the morbidity and mortality of the mother and child. [6)]

Several pregnant women did not wantto consume iron tablets because theyexperienced side effects such as nausea and difficult defecation and also of a lack of information from health workers. There were efforts carried out to prevent and manage anemia; one of them was by distributed iron tablets topregnant women inthe health facility. Every pregnant woman should consume iron tablets for 90 days to help prevent anemia.[7)]

Nowadays, health workers can use technology to monitor their patients; one of them was using Short Message Service (SMS). SMS is a service from GSM technology that can send and receive short messages in the form of text messages with a capacity of 160 characters that are composed of letters, numbers, or alphanumeric characters from or to mobile devices.[3)]

SMS Reminder is an SMS sent to pregnant women as a reminder to consume iron tablets every day.[8)] SMS Reminder is an SMS sent to pregnant women as a reminder to consume iron tablets every day. The content of SMS was a reminder about the iron tablet consuming schedule, also consuming nutritious foods. This method expected to help shape mothers' behavior in consuming iron tablets and help to educate mothers. Several studies stated that by consuming iron, tablets help to increase iron levels in pregnant women.[9)]

Based on Warureja Community Health Centers' data, in November 2017, there were 25 pregnant women (28.4%) found had anemia. Based on Warureja Community Health Centers' data, in November 2017, there were 25 pregnant women (28.4%) found had anemia. Based on the preliminary study, Warureja Health Center always distributes iron tablets and educates mothers about the proper way to consume it. However, there were still many pregnant women who experienced anemia because they did not obediently take iron tablets for nausea, unpleasant drug odor, forgetfulness, and laziness to take iron tablets. Therefore, researchers were motivated to analyze SMS reminders' effect on taking iron tablets against increased hemoglobin levels.

2. Method

This study was a quasi-experiment study using pre and post-test group design with a control group without randomization. This design used to compare the results of measurements before and after treatment in the two groups.[10)]

This study was conducted in Warureja Community Health Center in April 2018 to 31 pregnant women with anemia. The sample was taken using total sampling.[11)]

Data on hemoglobin levels were taken on the first day by interviewing and observing door to door. The researcher was also explaining SMS reminders, which will be given to them for 15 days, from 6 to 6.30 pm. After 15 days, researchers evaluate by examining their hemoglobin levels. Researchers were also taking data into the control group.

3. Results and Discussion

Table 1. Distribution of Hemoglobin Level Increase in Control Group

Hemoglobin Level	Before	After	p-value
Mean	10.035	10.882	0.0001
Different		0.8471	

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Table 1 shows a significant increase in hemoglobin levels in the intervention group (p-value = 0,0001).

Table 2 Distribusi frekuensi uji kenaikan kadar Hb pada kelompok kontrol

Hemoglobin Level	Before	After	p-value
Mean	10.035	10.882	0.122
Different		0.1500	

Table 2 shows that there was no significant difference in hemoglobin levels (p-value = 0.122).

During pregnancy, there is a significant increase in the need for iron to increase red blood cell mass and expansion of plasma volume for fetal growth. Also, iron is needed to form hemoglobin. During pregnancy, iron needs increase by 30%. Indonesia's government recommended consumption of iron supplements about 60 mg iron and 0.25 mg of folic acid per day or one tablet per day, which is consumed at least 90 tablets during pregnancy. [12), 7)]

Table 3. Difference of Hemoglobin Level in Intervention and Control Group.

Hemoglobin level	Post-test		p-value
	Intervention	Control	
Mean	10.882	10.386	0.0001
Different		0.496	

Table 3 shows that there is a significantdifference between the intervention and control group (p-value=0.0001)

A previous **study** showed the effectiveness of using posters and SMS reminders to form mother behavior in taking iron tablets, which directly helped increase their hemoglobin levels(p-value= 0.002).[13)]

This finding is consistent with Ermiati (2017), SMS reminder used to remindpregnant women to consume iron tabletshelped increase the compliance in consuming iron tablets behavior; which helps reduceanemia in pregnant women.[14)]

Based on the interview results to intervention respondents, they stated that they were grateful and become more compliant to take iron tablets, and also their hemoglobin levels increased. Education gave about nutrition also helped to form mothers to be more obedient in taking iron tablets.[13)] This finding is consistent with Alvionita's (2017); she found an increase in hemoglobin levels after giving SMS reminders to take iron tablets.[13)]

SMS reminder in taking iron tablets in the intervention group is very influentialin increasing hemoglobinlevels. The respondents more obedient and regularly taking iron tablets. Most pregnant women complained that they were more forgetful during pregnancy, and the SMS helped them remember taking iron tablets.

A previous study statedthat there were differences inknowledge, attitudes, and behaviorof pregnant women in consuming iron tabletsbefore and after getting an SMS reminderin the treatmentgroup. There were differences in knowledge, attitudes, motivation, and behavior of pregnant women between groups after the intervention.[15)]

Some experts stated that the incidence of anemia was caused not only due to the lack of iron tablets, but also several other factors, such as the nutritional status of pregnant women. Tanziah (2016) stated that chronic energy deficiency was 1.957 times more risk to get anemia than pregnant women with normal nutritional status with R2 = 0.028.[16)]

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4. Conclusion

There is an effect of SMS reminder on taking iron tablets in increasing hemoglobin levels in pregnant women with anemia (p-value = 0,0001). It is expected that health workers could utilize technology to help to educate and monitoring pregnant women's behavior in consuming the iron tablet

5. Acknowledgement

We are grateful to Warureja Community Health Center and Polytechnic Harapan Bersama for granting permission for this research.

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DOI: 10.30591/siklus.v9i2.1911.g1165

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DOI: 10.30591/siklus.v9i2.1911.g1165